GENERATION OF THE COMPENSATION FORMULA AND RESULTING DAMAGES — CHAPTER 6

The compensation formula calculates damages for each of 5 ranges of volume spilled, from 0 gallons to 50,000 gallons. The five volumes defining ranges are 100, 1000, 5000, 10000, and 50000 gallons. The volumes included in the range are greater than or equal to the minimum and less than the maximum, with the exception of 50,000 gallons, which is included in the largest volume category. 1991 $ damages for the interval of spill size is a linear function of spill volume:

$$1991\$ = m(VOL) + b$$

where m is the slope, VOL is the volume spilled in gallons, and b is the intercept.

The values of m and b are calculated from damages obtained at the two volumes defining the interval, $VOL_1 < VOL_2$, just below and above the spill volume of interest:

$$m_{1,2} = \frac{(1991\$_2 - 1991\$_1)}{(VOL_2 - VOL_1)}$$

$$b_{1,2} = 1991\$_2 - m(VOL_2)$$

where $m_{1,2}$ and $b_{1,2}$ are specific to the volume range, case, oil and season. Note that the proposed rule of January 1994 did not include spills of less than 10 gallons as applicable for the compensation formula. However, the range of 10 to 100 gallons is calculated using zero damages and gallons for $1991\$_1$ and VOL_1, respectively.

Thus, if one wishes to develop the formula and resulting damages for a selected spill scenario, one would proceed as follows. The volume spilled affected some area. The 1994 proposed rule allowed accounting for one or two habitat-province combinations affected. The volume affecting each of the possible habitat-province combinations of Exhibit A-1 and A-2 needs to be estimated. (Note that the 1994 proposed rule allowed cleanup volume over the first 24 hours after the spill to be subtracted.) The two most significant habitat-province combinations in terms of spill volume and effects should be selected as the cases to use.

Runs for the case(s) should be performed for the oil type, season, and the two volumes defining ranges just below and above the case's spill volume. The calculations above then provide slope and intercept for the range of volumes, case, oil, and season. The damages for the spill scenario are then calculated as:

$$\sum_i 1991\$_i = \Sigma\left(m_i(VOL_i) + b_i\right)$$

where the subscript i represents the case, oil, season and volume range combination. VOL_i is the actual volume assigned to case-oil-season-range i.

Damages calculated in 1991 U.S. dollars may be translated to U.S. dollars of another year using the gross national product price deflator price index. This may be obtained from the Economic Report of the President (e.g., 1990) or the Survey of Current Business for years not yet in the Economic Report.

In addition to the damages resulting from biological injuries that are specified by the above formula, damages due to lost recreational use of beaches may be claimed. These damages are calculated from closures of beaches for known lengths of shore and times. The data and procedures are described fully in the documentation to the proposed OPA rule, compensation formula, and in Version 2.4 of the NRDAM/CME (which uses the same data).